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EXAMINER				
LE, BRIAN Q				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

09/845,349

Applicant(s)

ISHII, HIROTOMO

Examiner

BRIAN Q. LE

Art Unit

2624

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/02)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/28/2009 has been entered.

Response to Amendment and Arguments

1. Regarding the amendment to the specification, the Applicant attempted to add "Thus, the target pixels are selected irrespective of any conditions" to the original specification is considered but not persuasive because:

First, the paragraph [0039] the specification clearly stated that "...and the target pixel may be selected..." which means a target pixel may also not select according to the language. Thus it is not inherent that target pixels are selected irrespective of any conditions. Additionally, it seems that the selection of target pixels disclosed by the original specification associates with condition and rules (see [0008] "...Here, the related pixels satisfies a condition on absolute positions of pixels ... to the target pixel"; [0009] "...and based upon a threshold value selected from these, the target pixel of the image is binarized").

The Applicant further argues (bottom of page 4 and page 5 of the Remarks) that the Examiner provides no clear articulation of why the invention would be obvious. The Applicant further notes that "it is well recognized that even KSR requires that an obviousness rejection be supported by an explicit analysis with some articulated reasoning with some rational underpinning". The Examiner respectfully disagrees. KSR forecloses the argument that a

specific teaching, suggestion, or motivation is required to support a finding of obviousness (emphasis added). See the recent Board decision *Ex parte Smith*, --USPG2d--, slip op. at 20, (Bd. Pat. App. & Interf. June 25, 2007) (citing *KSR*, 82 USPQ2d at 1396) (available at <http://www.uspto.gov/web/offices/dcom/bpai/prcc/fd071925.pdf>).

Furthermore, the Examiner had provided a clear rationale of why the prior arts were combinable. First, the instant Application is in the related field of obtaining images (e.g. printing and photocopying) with high quality and pattern detection using color discrimination and processing ([0005-0006]). Huang et al. U.S. 6,766,056 deals with detecting a predetermined mark (that is pattern detection) (abstract) for high quality color photocopying (column 1, lines 12-20). This is clearly in the same field of endeavor with the instant application. Lee et al. U.S. Patent 5,396,584 teaches edge enhancement for printing machine (abstract). Thus edge detection and enhancement (column 10, lines 45-50) also is a way of detecting pattern. Therefore, edge enhancement such as smoothing is a proper rationale to combine Lee to Huang.

For other arguments, please refer back to the explanations above since they depend on the basis of the arguments addressed above.

The Examiner believes that all the arguments of the Applicant have been properly addressed and explained. Thus, the rejections of all of the claims are maintained.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claim(s) 12 and 24 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. The Federal Circuit¹, relying upon Supreme Court precedent², has indicated that a statutory “process” under 35 U.S.C. 101 must (1) be tied to a particular machine or apparatus, or (2) transform a particular article to a different state or thing. This is referred to as the “machine or transformation test”, whereby the recitation of a particular machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility (See *Benson*, 409 U.S. at 71-72), and the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity (See *Flook*, 437 U.S. at 590”). While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform an article nor are positively tied to a particular machine that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. That is, regarding independent claims 12 and 24, the claim’s limitations do not significantly tie to a particular machine and also do not involve in a “physical or chemical transformation” or a “qualifying data transformation” since the claims’ steps do not represent a physical/real object or depict the modified data as an external representation of the physical object or substance, such as but not limited to a visual display. The examiner suggest amending the claims to tie to a particular machine such as “computer” or “image processor (or similar in scope) to the “meaningful and significant steps/limitations” of the claims. Any amendment to the claims should be commensurate with its corresponding disclosure.

Claim 24 is rejected because it depends on the independent claim.

¹ *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-12 and 22-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding independent claims 1, 8, 12, there is not support for the amended limitation "...selecting a target pixel included in the image data **irrespective of the first condition** and also selecting ..." (emphasis added). Thus, the Applicant is required to show the exact citation (page number and line number) that in the specification that supports this.

Other claims are rejected because they are depending on the independent claims.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

² *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

2. Claims 1, 2, 6-8, 12, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 6,766,056 by Huang et al. ("Huang") and further in view of Lee et al. U.S. Patent No. 5,396,584.

Regarding claims 1, 8, and 12, Huang discloses an image processing apparatus/medium/method (12, figure 1) comprising:

an input unit (scanner 11, figure 1) for inputting image data of an original image composed of a plurality of pixels, each having a color data (color image data is input to the pixel buffer pipe 42 via an input device; column 6, lines 19-21);

a storage unit (42, figure 4) for storing a first condition, wherein the first condition is met if a pixel is in a prescribed absolute position in the original image data and a second condition, wherein the second condition is met if a pixel is in a prescribed position relative to a target pixel in the original image data (first condition: the pixel buffer pipe receive subsampling signals from the sub-sample control module 41 and subsamples the image based on those signals; the resulting image is a down-sampled version of the original that contains only a subset of the original pixels; the pixels to be retained after subsampling constitute the first condition on absolute positions of pixels in the image; see column 6, lines 22-30 and 50-54; second condition: in figure 5, a number of "lag" pixels relative to a target pixel ("0") are identified; the designation of these pixels constitutes the second condition on positions of pixels relative to a target pixel; see column 6, lines 55-67);

a selector (45, figure 4) for selecting a target pixel included in the image data and also selecting at least one related pixel which satisfies the stored first condition and the stored second condition relative to the selected target pixel (column 7, lines 5-25: the threshold

determining unit 45 selects a target pixel 0 as well as related (lag) pixels 4-7, which must satisfy the first and second conditions – that is, the related pixels are present in the subsampled image (absolute condition), and they meet the condition of being “lag” pixels relative to the target pixel) such that the target pixel and the at least one related pixel are selected based on different conditions (the examination and selecting pixels based on various conditions) (column 2, lines 11-25);

a binarization unit (elements 43, 44, and 48, figure 4) for binarizing the target pixel into one of two data values based upon a color data of the target pixel (i.e. color value of the target pixel is compared to threshold during the binarization process) and that of the at least one related pixel to the target pixel in the image (i.e. related pixels are used to generate the threshold) to generate a binarized value (binarized value 54A is output by the pixel count accumulator 48); and

a determination unit (22, figure 2) for determining whether or not the image has a specified pattern, based upon binarized values obtained by said binarization unit (i.e. the mark detection module 22 determines whether a specified patterns exists).

Huang does not explicitly teach a selection of a target pixel can be irrespective of the first condition. Lee teaches an image processing method (abstract) wherein teaches a selection of target pixel irrespective of condition (The selecting processing dot regardless of whether it is black or white character or a multibit gray scale image) (column 12, lines 18-25). Modifying Huang’s method of processing method according to Lee would be able to select a target pixel regardless of other conditions. This would improve processing because it would help in the

process of smoothing edges (column 12, lines 35-40) and therefore, it would have been obvious to one of the ordinary skill in the art to modify Huang according to Lee.

Regarding claim 2, Huang discloses the binarization unit obtains a color data for binarization based upon the color data of the target pixel and that of the at least one related pixel (column 7, lines 12-31: the “color data” obtained for binarization includes the pixel value of the target pixel, and a color threshold that is based on the related pixels), and generates the binarized value based upon whether or not the value indicated by the color data for binarization is within a predetermined range (column 7, lines 20-31 the 3-bit binarized value of the target pixel is generated based upon whether the target pixel’s color value is within the color range for a designated mark -- this 3-bit binarized value is then used to generate a binarized value 54A composed of a single bit).

Regarding claim 6, Huang discloses the determination unit determines whether or not an image element having a shape similar to the specified pattern exists, based upon the binarized values, and when the image element is determined to exist, finely examines the shape of the image element to determine whether or not the specified pattern exists (column 12, lines 42-55: the mark detector detects circle patterns, and then finely examines those circle patterns by gathering statistical parameters).

Regarding claim 7, Huang discloses that when the image element is determined to exist, the determination unit inhibits to generate an image resembling closely the image received from the input unit (column 21, lines 45-52: e.g. photocopier functions are disabled upon detecting the image element).

Regarding claims 22-24, Huang's subsampling results in maintaining pixels in the image that are spaced at regular intervals (i.e. fixed with respect to an edge of the image), as is found in conventional subsampling.

3. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Huang and Lee et al. U.S. Patent No. 5,396,584, as applied to claims 1 and 8, in view of U.S. Patent 5,434,953 by Bloomberg.

Regarding claims 4 and 10, Huang discloses subsampling the image in order to reduce the image size, thereby defining a first condition (column 6, lines 22-30), and Huang also discloses a pixel which exists in a straight line including the target pixel extending in the predetermined direction and which is positioned within a predetermined range from the target pixel is the pixel defined in the second condition (figure 5: "lag" pixels, which are positioned within a predetermined range from the target, define the second condition).

Huang does not expressly disclose that every N pixel from a pixel at an edge of the image in a predetermined direction within the image is the pixel defined in the first condition.

However, at the time the invention was made, it was obvious to one skilled in the art that subsampling was typically effected by maintaining every Nth pixel from the edge of the original image in a predetermined direction (e.g. horizontal and vertical directions). Bloomberg teaches that "subsampling" is an operation that involves dividing an image into square blocks of pixels and then selecting a predetermined pixel from each block. The subsampled image is formed by combining each of the selected pixels, resulting in an image that includes every Nth pixel from the original image. Col. 4, lines 8-14. In view of Bloomberg's definition of "subsampling,"

whose skilled in the art would have known that Huang's subsampling constitutes maintaining every N pixel from the edge of the image in a predetermined direction within the image.

4. Claims 3 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Huang and Lee et al. U.S. Patent No. 5,396,584, as applied to claims 1 and 8, in view of U.S. Patent 5,687,252 by Kanno et al. ("Kanno").

Regarding claim 9, Huang discloses the binarization step includes:

obtaining a color data for binarization based upon the color data of the target pixel and that of the at least one related pixel (column 7, lines 12-31: the "color data" obtained for binarization includes the pixel value of the target pixel, and a color threshold that is based on the related pixels), and

generating the binarized value based upon whether or not the value indicated by the color data for binarization is within a predetermined range (column 7, lines 20-31 the binarized value of the target pixel is generated based upon whether the target pixel's color value is within the color range for a designated mark).

Regarding claim 3 and further in regards to claim 9, Huang does not disclose the color data for binarization is obtained based upon an average value between the value of the color data of the target pixel and that of the at least one related pixel.

Rather, Huang discloses that the threshold is obtained based on only the related (lag) pixels.

Kanno discloses an image processing system that includes the binarization of image data, similar to the system of Huang. In particular, Kanno discloses a number of different binarization processes that may be carried out in order to binarize image data (column 4, lines 1-13). Method

(5) involves calculating a threshold based on average values of both a target pixel and related pixels (see figure 9 and column 9, lines 65+). The average value of the target pixel and its related pixels within a predetermined range is then used as a threshold for binarizing the target pixel.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Huang by Kanno to include the target pixel in the calculation of the average value to be used as the threshold, since Kanno shows that calculating the average value based on both the target pixel and related pixels for the purposes of generating a threshold for binarization of a single target pixel is conventional.

Allowable Subject Matter

1. Claims 5 and 11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Regarding claims 5 and 11, Huang is silent to storing a third condition defining a position relative to the target pixel in a predetermined direction specified by a user, and wherein the at least one related pixel includes a pixel satisfying the third condition. Huang's system does not appear to involve any user interaction for specifying a predetermined direction corresponding to a third condition defining a position relative to the target pixel, as claimed.

Contact Information

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN Q. LE whose telephone number is (571)272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian Q Le/
Primary Examiner, Art Unit 2624
11/9/09